# A METHOD OF BIT AND POWER LOADING IN OFDM COMMUNICATION SYSTEMS WITH MODULATION AND CODING ADAPTATION

## ABSTRACT

In an OFDM system with modulation and coding adaptation, the carriers are allotted a

5    respective plurality of transmission modes characterised each by a specific combination of a modulation format and a coding scheme and consequently by a specific combination of values of bit rate and power. To allocate to each carrier, for a given OFDM symbol to be transmitted, an optimum value of bit rate and power resulting in the maximum bit rate for a given power or in a minimum power for a given bit rate, all carriers are initially allotted the

10   mode characterised by the highest bit rate or power. If the constraints on the power (or respectively the bit rate) are not met, an iterative mode reduction is performed, the mode reduction at each iteration step being performed on the carrier for which said transition has a minimum cost. (Fig. 2).